

Summary of Funding Mechanisms (Past Proposals, Other States, Other Countries, and Current Available Funding)

		AZ Past	Proposals	
	Funding Mechanism			Revenue Source
WRDC Report	 Bottled Water Tax Transaction Priviled Statewide New Dev New or Existing We Statewide New Dev Local Area Develop Special District Ass Public or Private Ut Local/Regional Ad Groundwater Withd 	Water Supply Development Revolving Fund (Not funded as of May 2021) Bottled Water Tax Transaction Privilege Tax Statewide New Development Tax New or Existing Well Fees Statewide New Development Tax Local Area Development Impact Fees Special District Assessment or Charge Public or Private Utility Connection and volumetric charges Local/Regional Ad Valorem Taxes Groundwater Withdrawal fees Public Private Partnerships		1. Issuance of water supply development funds, Legislative appropriation, Federal Funding for water supply development, Loan payments, interests, penalties from water providers Interest and other income from investment in the Fund Gifts, donations and grants
	T=		southwestern states	
	Earliest legislation	Most recent legislation	Funding Mechanisi	m Revenue Source
Texas	on water finance 1957- Legislature formed the TWDB in response to TX's record-breaking drought and delegated bond issuance authority to fund the Board.	on water finance 2018 – Implemented two new funds, the Flood Infrastructure Fund and the Texas Infrastructure Resiliency Fund and authorized \$793 m from the rainy-day fund to finance the funds. 2013 – Texas voters approved the SWIFT and SWIRFT for Texas to finance water infrastructure projects. TX Legislature's goal was to provide \$27 billion in loans for water infrastructure project over 50 years.	 Texas Water Deversund State Water Implementation Fraces (TX Water specific) State Participation Rural Water Assist Fund 	Water Development Board und for Plan stance
California	1959 - Approved 1.75 billion for the	2020 - California Gov. Gavin Newsom announced a \$5.1 billion	 State General Fur State General Ob Bonds 	, , ,

	construction of water infrastructure Davis-Grunsky Act established a statewide financial assistance program for local public agencies to better develop, control, and conserve California's water resources (around 130 million?)	package supporting the state's water infrastructure and drought response as part of his historic "California Comeback Plan." The plan, which also includes direct payments to low and middle-income residents, will allocate more than \$1 billion for providing small and disadvantaged communities with drinking water and wastewater infrastructure, according to a press release from the governor's office. 2019 – SB 200 signed by Gov. Newsom to establish the Safe and Affordable Drinking Water Fund. \$130 million was provided in the 2019-20 state budget to begin implementing this program. 2014 - California Proposition 1, the Water Bond was approved on November 4, 2014 – issuing 7.12 billion in bonds for water supply infrastructure projects and allocating bond revenue.	3.	Designated Special Funds	3	. State fees, assessments, taxes, and other revenue sources with a designated purpose
Colorado		2018 – CO Legislature appropriated \$10 m from the CWCB construction	1.	CWCB Construction Fund	1	. Repayment of loans, interest, federal mineral royalty distributions

	fund for FY 2018-19 to implement the Colorado Water Plan. 2. Severance Ta (50% allocated water projects -Perpetual base -Operational a -Operational Acceptate -Water Supply Results -Water Efficiency Program 3. Colorado Water and Power De Authority Ioans 4. Colorado Heal Fund	se fund loans account Tier 1 count Tier 2 eserve Fund y Grant 3. Revenue bonds er Resources evelopment s and grants 4. Colorado Individual Income Tax
	Current Available Funding Sources – Federa	I & AZ State
Agency	Program	Eligible Applicants
FEMA	 Hazard Mitigation Grant Pre-Disaster Mitigation Flood Mitigation Assistance Program 	Municipal/Private Utilities, Agriculture, Industrial, Tribal, Environment
BOR	1. WaterSMART 2. Title XVI	Municipal/Private Utilities, Agriculture, Industrial, Tribal, Environment.
EPA	 WIFIA, SWIFIA (exclusively for state infrastructure financing authorities) 	Municipal/Private Utilities, Agriculture, Industrial, Tribal
USACE	Corps Water Infrastructure Financing Program	Municipal/Private Utilities, Agriculture, Industrial, Tribal, Environment
USDA	 Revolving Funds for Financing Water and Wastewater Projects in Al Special Evaluation Assistance for Rural Communities and Househol Water & Waste Disposal Loan and Grant Program 	
HUD	 Natural Disaster Resilience Program Community Development Block Grant Mitigation Program 	Municipal Utilities, Tribal
AZ Water Infrastructure Financing Authority (WIFA)	Drinking Water State Revolving Fund Clean Water State Revolving Fund	Municipal Utilities, Agriculture, Tribal

ADWR	Conservation & Augmentation Funds/WMAP Water Protection Fund	
ADEQ	1. WQARF 2. Watershed Management 3. Water Quality Improvement	
Greater Arizona Development Authority (GADA)	Technical Assistance Program (Currently dormant)	
	Approach and Financing mechanisms in other countries	
Australia	Approach is based on national long-term planning and a singular water grid of national significance. Significant emphasis is placed on an integrated water cycle management (stormwater capture, wastewater recycling, desalination) for urban uses. Australia also follows a cap and trade and water sharing system for productive uses (mostly rural and environmental uses)	
	Infrastructure investment is specific to national long-term planning and making Australia resilient and sustainable. The National Water Infrastructure Development Fund (NWID Fund) is a rolling 10-year water infrastructure program and is funded by the Australian Government. The Fund has two components – a feasibility component and a capital component. Initially the Fund was provided \$500 million (59.5 million for feasibility component and 440 million for capital component). The Fund provides grants to states and territories and requires matching monies. Water infrastructure projects contributing to the National water grid are also funded and administered through the Department of infrastructure, Transport, regional development and communications. Total funding from the Australian Government through the Sustainable Rural Water and Infrastructure Program has been around 3.5 billion.	
Canada	Environment Canada is the federal department in charge of conserving and protecting Canada's water resources. Infrastructure Canada, manages	

infrastructure issues and programs within the larger Transport, Infrastructure and Communities portfolio. **Financing:** The greatest portion of investment in water and sanitation infrastructure and services has been financed by municipal governments from revenues derived from general property taxes or from water and sanitation charges. **Provinces** provide both conditional grants (more than 80%) and unconditional grants (less than 20%) to municipalities. Conditional grants can either be lump-sum payments (non-matching transfers) or matching grants. Matching grants provide a certain percentage of financing that varies among Provinces and programs, while requiring the balance to be paid by the municipality. Federal financing Infrastructure Canada manages a number of federal funds financing investments in Canada's infrastructure. None of these funds is dedicated exclusively to water supply and sanitation. The funds managed by the department include three funds under the Building Canada program: • CAN\$8.8 billion for the Building Canada Fund (BCF), which is being used for Core National Highway Systems, drinking water, wastewater, public transit and green energy, as well as other projects; CAN\$25 million a year in base funding to each province and territory, for a total of \$2.275 billion over seven years; and • CAN\$11.8 billion for the Gas Tax Fund, which invests in municipal infrastructure that contributes to cleaner air, cleaner water and reduced greenhouse gas emissions and supports better community planning. Investing in Canada Infrastructure Program (ICIP) - \$180 billion over the next 12 years Clean Water and Wastewater Fund - \$2 billion for rehabilitation of water treatment and water distribution infrastructure, collection and conveyance infrastructure; and initiatives that improve asset management, system optimization, and planning for future upgrades to water and wastewater systems **Singapore** Envisions water and environment as a commercial industry capable of growth with research with technology and private sector playing a key role. Public Utilities Board (PUB), the national agency manages the entire water

cycle as a single system, from sourcing to distributing water to collecting and

treating water to produce recycled water or NEWater.

	PUB is financed through: a) Water Tariffs – Water tariffs were restructured to reflect the higher cost of securing water supplies and allowed to progressively increase between 1997 and 2000. PUB has also made recycled water cheaper than tap water and provided low cost loans and tax deductions to companies using recycled water (pricing policies and incentives to encourage uptake) b) General obligation bonds – In 2005, PUB tapped the financial markets for a \$\$400 million bond issue.	
Great Britain	In England, the ten private water authorities are responsible for all aspects of management of water within a geographical region, defined by a river basin or a series of river basins. Water Services Regulatory Authority (OFWAT) is responsible for economic regulation Financing is through self-financing and capital market borrowing	

Water Resource Development Commission Report Overview:

The Water Resource Development Commission (WRDC) was established by the Arizona State Legislature via House Bill 2661 in 2010 and given the task of assessing Arizona's demand for water and the supplies available to meet those demands for the next 25, 50, and 100 years. Five committees were formed in order to meet the statutory obligations of the WRCD: Population Committee, Water Supply and Demand Committee, Environmental Committee, Finance Committee and the Legislative Recommendations Committees. This document deals only with findings and recommendations of the Finance Committee.

One of the tasks of the Finance Committee (Committee) was to identify potential funding mechanisms based upon differing cost estimates. The Committee recognized that funding and financing of water supply will require creative solutions. In comparing and contrasting traditional financing sources the Committee identified potential revenue sources and mechanisms for further evaluation. They are listed below:

- 1. Water Supply Development Revolving Fund (Not funded as of May 2021)
 - i) Issuance of water supply development funds
 - ii) Legislative appropriation
 - iii) Federal Funding for water supply development
 - iv) Loan payments, interests, penalties from water providers
 - v) Interest and other income from investment in the Fund
 - vi) Gifts, donations and grants
- 2. Bottled Water Tax
- 3. Transaction Privilege Tax
- 4. Statewide New Development Tax
- 5. New or Existing Well Fees
- 6. Statewide New Development Tax
- 7. Local Area Development Impact Fees
- 8. Special District Assessment or Charge
- 9. Public or Private Utility Connection and volumetric charges
- 10. Local/Regional Ad Valorem Taxes
- 11. Groundwater Withdrawal fees
- 12. Public Private Partnerships

In 2017 the Governor's Water Augmentation Council's Finance Committee conducted a review of the WRDC Finance subcommittee report well as their recommendations.

Status of Water Development Funds in other southwestern states:

Texas

The Texas Water Development Board (TWDB) was formed by legislative act and constitutional amendment in 1957 in response to Texas' record-breaking drought. The constitutional amendment approved by Texas voters, authorized the TWDB to issue \$200 million in State of Texas General Obligation Water Development Bonds for the conservation and development of Texas' water resources through loans to political subdivisions. The mission and responsibility of TWDB has evolved over time, the Board continues to be responsible for long-range planning and water project financing. In 2013, Texas Legislature approved and authorized a one-time \$2 billion investment from the Economic Stabilization Fund to the State Water Implementation Fund and the State Water Implementation Revenue Fund for Texas to help fast track state water plan projects by offering cost effective financial assistance. In 2019, Texas Legislature greatly expanded the TWDB's role in flood planning and financing by authorizing the TWDB to administer state and regional flood planning process and made a voter approved transfer of \$793 million from the state's economic stabilization (rainy day fund) to be administered by the TWDB.

The Texas Water Development Fund (DFund), State Water Implementation Fund for Texas (SWIFT), State Participation, Drinking Water State Revolving Fund, and the Rural Water Assistance Fund, in general allows for funding of water development projects. In addition to these sources, private activity bonds are also utilized by entities for water development projects. Each of these programs have their own eligibility criteria and requirements. Research and planning grants through the DFund are also available for planning purposes only. Most of these programs also require that water supply projects must be consistent with the current Texas state water plan.

Texas legislation requires the development of a state water plan every 10 years to address the needs of all water user groups in the state – municipal, irrigation, manufacturing, livestock, mining and steam-electric power. Since 1997, water planning in Texas has been a regional, bottom-up process. Sixteen regional water plans are developed by regional water planning groups every five years and are the basis for the state water plan. The regional and state water plans consider a 50-year planning horizon.

The Texas Water Development Fund (established in the 1950s)- DFund is a state funded loan program administered by the Texas Water Development Board (TWDB) that does not receive federal subsidies and is not subject to federal crosscutters. TFund obtains its funding from the issuance of state general obligation bonds. The Fund enables the Texas Water Development Board to fund multiple eligible components in one loan to borrowers. Financial assistance is in the form of loans with typically 20-year maturities, although longer maturities are available. Interest rates are dependent upon market conditions at the time the TWDB sells it bonds. This program is the most flexible and non-restrictive of the TWDB financial assistance programs, BUT because the interest rates are not subsidized, the cost benefit may not be attractive to large borrowers. It is however more attractive to smaller and taxable issuers, or possibly to those that benefit from shorter timeframes to access funds.

State Water Implementation Fund for Texas (SWIFT) (Water Infrastructure Fund (WIF¹) was a precursor) – In 2013, the Texas Legislature created SWIFT to provide affordable, ongoing state financial assistance for projects in the state water plan. The program helps communities develop cost effective water supplies by providing low-interest loans, extended repayment terms, deferral of loan payments, and incremental repurchase terms. Through FY2019, SWIFT has committed over \$8 billion for projects across Texas. The Texas Legislature also implemented the State Water Implementation Revenue Fund for Texas (SWIRFT) along with SWIFT. SWIRFT is created as a special fund in the state treasury outside of general revenue for implementing the state water plan. SWIRFT can hold funds appropriated by the Legislature, any fee, tax, or revenue dedicated to the fund, investment earnings, bond proceeds, loan repayments and other revenue associated with projects associated with projects financed through the program. TWRB may issue revenue bonds to provide money to the fund. The funds are used by TWRB without appropriation.

State Participation – Funding for the State Participation Program is also through the issuance of bonds as authorized by the legislature. Political subdivisions and water supply corporations sponsoring construction of regional water or wastewater projects are eligible for funding through this program. Financial assistance is in the form of the State's temporary purchase of the excess capacity portion of a project. The eligible participation in the project is that portion which results in excess capacity above current and near-term projected needs of the entity that is beyond the entity's ability to repay based on their current rate-paying base. Financial assistance is typically over a 34-year period. To keep projects from being a burden to local rate payers, the state bears the cost of excess capacity in the first several years following construction, when the excess capacity is not needed. As growth occurs and more of the capacity is needed, the TWDB sells its share of the capacity to the project's ultimate owner. The TWDB uses money from the sale to retire the state's debt or to finance other projects.

New water supply projects can fund up to 80% of costs through this program, provided the applicant will finance at least 20% of the total project cost from other sources, and at least 20% of the total capacity of the proposed project will serve existing needs. For all other types of projects eligible for the program, 50% of costs can be funded, provided at least 50% of the total project costs are from other sources and at least 50% of the total capacity of the proposed project must serve existing needs.

Rural Water Assistance Fund (RWAF) – The RWAF was created for the purpose of providing small rural areas of the state with an additional means of financing water projects and wastewater projects. Eligible applicants include non-profit water supply and sewer service corporations, water districts, and municipalities serving populations of up to 10,000, or that otherwise qualify for federal financing, or counties in which no urban area has a population exceeding 50,000. Generally, this program targets non-profit water

_

¹ The WIF fund was created for the purpose of funding projects in the State Water Plan. No funds were appropriated, even though \$50 million in new bond authorization is required to be used for this purpose. This program would allow for funding for water projects in the form of both loans and grants. Current restrictions allow for up to 10% of the annual financial assistance to be utilized in the form of grants or low to 0% interest loans. A 10% restriction also applies to loans that could be offered at market or below market interest rates which would include a 10-year deferral on principal and interest repayment intended for financing of planning, design and permitting costs.

supply corporations who receive an added benefit in that construction purchases qualify for a sales tax exemption. Financial assistance is in the form of loans with maturities of up to 40 years. To fund this program, the TWDB applied for and received an allocation of \$75 million of the state's Private Activity Bond volume cap. By selling general obligation bonds, the TWDB can offer loans to non-profit water supply corporations at tax-exempt rates. Interest rates are dependent upon market conditions and are set at approximately .125% above the TWDB's borrowing cost.

California:

California's funding of water resources management activities is predominately from the State General Fund, State General Obligation Bonds, and Special Designated Funds (including user assessments, fees, and taxes). These funding mechanisms have been used to finance water resources management and environmental programs, some of which provide grants for local agencies to perform management actions. It is important to note that the State does not fund water resources management alone. In fact, local agencies fund a majority of water resources management in California. Like Texas, Water Code 10004 requires the California Department of Water Resources (CADWR) to write an publish the California Water Plan as a plan for developing, utilizing, conserving and managing water resources throughout the state and update the plan every 5 years. Developed with input from a variety of stakeholders, the Plan guides state investments in innovation and infrastructure as well.

State General Fund – The State General Fund can be used for capital, and operation and maintenance (O&M)

State General Obligation Bonds – State GO Bonds are loans backed by the full faith and credit of California. Issuance requires a statewide vote. These bonds are central to investing in water resources capital management actions but have less applicability to some ongoing actions.

Designated Special Funds – Designated special funds have a regulatory guidance on revenue generation and applicable uses of expenditures. Water related designed special funds include those associated with the State Water Project, environmental protection, and water or air pollution. These funds have specified revenue sources that can only be used for the purposes identified in legislation. Some designated special funds have a competitive process to award funding for implementation of management actions via loans or grants, while others have a prescribed purpose.

Historical expenditures on water management are managed by the CADWR, the State Water Resources Control Board and California Department of Fish and Wildlife. Each of these agencies and their mission is supported through the funds mentioned above. For example the California Safe Drinking Water Fund of 1988, the California Water Resources Development Bond Fund (David-Dolwig), 1984 State Clean Water Bond Fund, Bosco-Keene Renewable Resources Investment Fund among others support CADWR. Some of these funds plus the California Clean Water, Clean Air, Safe Neighborhood Parks and Coastal Protection Act of 2002, Safe Drinking Water Account etc support the State Water Resources Control Board.

Colorado:

Historically, Colorado has played a limited role in the financing and construction of water development projects. Most of Colorado's water projects were built using private monies, property tax revenue, user fees and federal monies. The State funds several loan and grant programs for the planning, construction and rehabilitation of private and public water supply projects.

CWCB Construction Fund- revolving loan program to finance water diversion and storage projects. According to state law, the first priority for moneys in the fund must be for projects that increase the beneficial consumptive use of Colorado's undeveloped compact entitled waters. The balance of the moneys in the fund must be used for the repair and rehabilitation of existing water storage and delivery systems, controlled maintenance of the satellite monitoring system, and for investment in water management activities and studies. Moneys in the fund may also be used to pay for up to 50 percent of the cost of feasibility studies and water supply investigations. Loans may not be used for domestic water treatment and distribution systems. Loans for more than \$10 million must be approved by the General Assembly. Also, grants may not be made from the fund unless authorized by bill. The CWCB is authorized to issue loans for less than \$10 million without General Assembly approval. For loans under \$10 million, the CWCB is required to submit a report by January 15th of each year to the Colorado General Assembly describing the basis for such loans, called the Small Project Loan Report. The fund receives revenue from the repayment of loans, interest on the fund in the state treasury, and federal mineral royalty distributions.

Severance Tax Trust Fund. The severance tax is paid by producers of oil, gas, coal, and other minerals. State law provides that 50 percent of severance tax revenues are credited to the Severance Tax Trust Fund and 50 percent of the revenues are credited to the Department of Local Affairs for grants and distributions to local governments impacted by mining activities. Of the revenue credited to the Severance Tax Trust Fund, 50 percent is allocated to the Perpetual Base Fund of the Severance Tax Trust Fund (or 25 percent of total severance tax revenues) for use by the CWCB to build water projects. The other 50 percent of Severance Tax Trust Fund revenues (or 25 percent of total severance tax revenues) are allocated to the Operational Account to fund programs that "promote and encourage sound natural resource planning, management, and development related to minerals, energy, geology, and water."

Severance Tax Trust Fund Perpetual Base Fund loans. The CWCB is authorized to issue loans for water projects from moneys in the Severance Tax Trust Fund Perpetual Base Fund. For example, in 2010, the General Assembly appropriated \$36 million from the Perpetual Base Fund for the purchase of 10,460 acre-feet of water from the Animas-La Plata Project in southwest Colorado. In 2012, the General Assembly authorized \$30 million to be transferred from the Perpetual Base Fund for the Rio Grande Cooperative Project. These moneys will be used to rehabilitate the Rio Grande Reservoir and the Beaver Park Reservoir. As of June 30, 2017, the fund's value was approximately \$410 million, of which \$375 million is authorized for projects or loans in repayment. Approximately \$35 million is available for future projects.

Tier 1 and Tier 2 programs in the Operational Account. A law enacted in 2008 divides programs funded from the Operational Account of the Severance Tax Trust Fund into two tiers. The tier 1 programs support the operations of the Colorado Department of Natural Resources, including paying salaries for employees. The tier 2 programs support grants, loans, research, and construction. Tier 2 programs are subject to proportional reduction if mid-year revenue projections indicate there are insufficient funds. The distribution of

funding for tier 2 programs is staggered over the course of the fiscal year, with 40 percent released July 1; 30 percent released January 4; and the final 30 percent released April 1.

Water Supply Reserve Fund. The Water Supply Reserve Fund (WSRF) — part of tier 2 of the Operational Account of the State
Severance Tax Trust Fund — was created in 2006 to help address Colorado's water needs and support the Interbasin Compact
Committee process. Moneys in the fund may be used for grants or loans. Spending from the WSRF does not require legislative
approval. The WSRF criteria and guidelines split the WSRF into basin and statewide funds. Once a request for funding from the WSRF
is approved by a basin roundtable, the request is forwarded to the CWCB for funding evaluation and final authorization. Eligible
activities include:
□ competitive grants for environmental compliance and feasibility studies;
□ technical assistance regarding permitting, feasibility studies, and environmental compliance;
□ studies or analyses of structural and nonstructural water projects or activities; and
□ structural and nonstructural water projects or activities.

In 2009, the legislature passed a law that transfers \$10 million annually from the Operational Fund of the Severance Tax Trust Fund to the WSRF and continues these transfers indefinitely thereafter.2 However, the transfers will be reduced according to a statutory formula if appropriations exceed available severance tax revenue. Due in part to low oil and gas prices, no severance tax revenue was transferred to the Water Supply Reserve Fund in FY 2016-17 and none is expected to be transferred in FY 2017-18. However, the legislature appropriated \$10.0 million, primarily from the Perpetual Base Fund, for the Water Supply Reserve Fund program in FY 2017-18. This law also prohibits the board from allocating moneys by grant or loan from the fund to "covered entities" unless they have adopted a water conservation plan. Covered entities are defined as a municipality, agency, or utility with a legal obligation to provide retail water to a customer base with a total annual demand of at least 2,000 AF. Repayments of principal and interest on loans from the fund are credited to the fund.

Colorado Healthy Rivers Fund. The Colorado Healthy Rivers Fund was added to the Colorado Individual Income Tax Refund Checkoff program in 2002. The law allows taxpayers to contribute voluntarily to watershed protection efforts in Colorado. These moneys may be used for planning and engineering studies to address technical needs for watershed restoration and flood mitigation projects, including projects to restore stream channels, provide habitat for aquatic and terrestrial species, restore riparian areas, reduce erosion, and reduce flood hazards. Grants are awarded by a panel that includes two appointments each from the Water Quality Control Commission and the Colorado Water Conservation Board. This panel is required to cooperate with the Colorado Watershed Assembly when reviewing grant requests. The Colorado Watershed Assembly is comprised of more than 80 watershed protection entities, including municipalities, water conservancy districts, water conservation districts, water providers, landowners, federal and state agencies, and individual citizens. As of September 30, 2017, Colorado taxpayers donated over \$82,000 for the 2016 tax year. Since 2003, taxpayers have donated \$1.1 million to the fund.

Approach to water planning, Infrastructure and funding mechanisms in other countries

AUSTRALIA

Australia's water infrastructure development is strongly based on national long-term planning and a singular water grid with national significance for the entire continent. There is widespread recognition in Australia that the existing regional water infrastructure cannot meet their long-term water supply demands. Moreover, Australia manages urban water and productive water uses separately, following a cap and trade and water sharing system for productive uses (mostly rural and environmental uses) and an integrated water cycle management (stormwater capture, wastewater recycling, desalination) for urban uses.

The National Water Initiative (NWI) of Australia, a national blueprint or water reform was initiated in 2004, with agreement from the Council of Australian Governments (COAG). The NWI builds upon the 1994 COAG water reform framework. The NWI is a shared commitment by governments to increase the efficiency of Australia's water use, leading to a greater certainty for investment and productivity, for rural and urban communities and for the environment. Under the NWI, governments commit to prepare comprehensive water plans, achieve sustainable water use in over-allocated or stressed water systems, introduce registers of water rights and standards for water accounting, expand trade in water rights, improve pricing for water storage and delivery and to better manage urban water demands.

Infrastructure Australia is Australia's independent infrastructure advisor. Established in 2008 to advise governments, industry and the community on the investments and reforms, Infrastructure Australia evaluates business cases for nationally significant investment proposals and sets policy agenda on long term opportunities for infrastructure reform. This organization also conducts routine audits of Australia's water infrastructure.

The National Water Grid Authority (NWGA) works with State and territory partners to ensure investment decisions align with the NWI and under advice from Infrastructure Australia. Infrastructure investment therefore is specific to making Australia resilient to extreme weather events and to sustain regional communities. The NGWA administers the National Water Infrastructure Development Fund (NWID Fund) the purpose of which is to accelerate the assessment and implementation of water infrastructure proposals which could simulate regional economic activity and development. The NWID Fund is a rolling 10-year water infrastructure program and is funded by the Australian Government. The Fund has two components – a feasibility component and a capital component. Initially the Fund was provided \$500 million (59.5 million for feasibility component and 440 million for capital component). The Fund provides grants to states and territories and requires matching monies.

Water infrastructure projects contributing to the National water grid are also funded and administered through the Department of infrastructure, Transport, regional development and communications. The Sustainable Rural Water and Use Infrastructure Program allows for infrastructure to support rural and environmental uses.

CANADA:

The Canadian federal government has certain specific responsibilities relating to water, such as fisheries and navigation, as well as exercising certain overall responsibilities such as the conduct of external affairs. Environment Canada is the federal department (Ministry) in charge of conserving and protecting Canada's water resources. Infrastructure Canada, a department established in 2002, is a focal point for the Government of Canada on infrastructure issues and programs within the larger Transport, Infrastructure and Communities portfolio.

According to the National Round Table on the Environment and Economy, unmet water and wastewater infrastructure needs in Canada were CAN\$38–49 billion in 1996, and capital costs for the following 20 years would be in the order of CAN\$70–90 billion.

Financing It was estimated that in the late 1990s the total annual operating cost of water and sanitation services were greater than US \$2.75 billion while the revenue generated from user fees is to the order of US \$2.1 billion. The difference is made up from general municipal revenues (e.g., property taxes or subsidies from senior levels of government).

The greatest portion of investment in water and sanitation infrastructure and services has been financed by municipal governments from revenues derived from general property taxes or from water and sanitation charges which are increasingly moving to the state of full cost pricing. All Provinces and Territories provide funds via transfers to the municipal governments in their jurisdictions. The federal contribution, while significant in absolute terms (for example, in the period 1993 to 1998 the amount was in excess of US\$1.4 billion), represents only a small proportion of total public investments in municipal infrastructure.

Provincial financing Provinces provide both conditional grants (more than 80%) and unconditional grants (less than 20%) to municipalities. Conditional grants can either be lump-sum payments (non-matching transfers) or matching grants. Matching grants provide a certain percentage of financing that varies among Provinces and programs, while requiring the balance to be paid by the municipality.

Federal financing Infrastructure Canada manages a number of federal funds financing investments in Canada's infrastructure. None of these funds is dedicated exclusively to water supply and sanitation. The funds managed by the department include three funds under the Building Canada program:

- CAN\$8.8 billion for the Building Canada Fund (BCF), which is being used for Core National Highway Systems, drinking water, wastewater, public transit and green energy, as well as other projects;
- CAN\$25 million a year in base funding to each province and territory, for a total of \$2.275 billion over seven years; and
- CAN\$11.8 billion for the Gas Tax Fund, which invests in municipal infrastructure that contributes to cleaner air, cleaner water and reduced greenhouse gas emissions and supports better community planning.

NEW ZEALAND

New Zealand's water strategy is focused on three assets – water, wastewater and stormwater. Water New Zealand is the industry body that administers the three waters sector. Current issues facing New Zealand are missing hierarchy to guide regulators in a competing water demand scenario, overallocation of water, limited ability to transfer water, segregated policies on infrastructure

On 29 January 2020, the Government announced the investment of \$12 billion in the New Zealand Upgrade Programme, focusing on rail, roads, schools and hospitals. Investment in the three waters is expected to be \$17.2 billion over the next decade, split between \$11.6 billion in waste and stormwater, and \$5.6 billion for water supply. However, more than half of the planned investment in waste and stormwater is to replace assets that are at the end of their working life, with only a quarter of the money allocated for additions and improvements. They claimed that further new investment in water infrastructure is needed to cope with a growing population and the demands of the Government's three waters review, aimed at improving the quality of drinking water, storm water and wastewater.

SINGAPORE

Singapore on average receives 94 inches of rainfall in a year. Yet it is classified as water scarce because its limited land mass imposes severe limits on its ability to capture and store water. Industry, commerce and households are the main consumers of water in Singapore. Historically, Singapore has depended on local catchments and water imported via pipelines from its northern neighbor Malaysia. Under two separate agreements Singapore buys raw water from Malaysia until 2011 and 2061, respectively and sells treated water back to Malaysia. Negotiations to extend water agreements with Malaysia were complicated, centering on the price of water but also covering other issues Malaysia hoped to resolve together with the water issue. In 2002, Singapore indicated that it would allow the 1961 agreement to lapse in 2011. Singapore's first Water Master Plan produced in 1972, outlined plans to develop local water resources in Singapore, including water from local catchments, recycled water, and desalinated water, to ensure a diversified and adequate supply of water for future needs. In 2002, the Four National Taps strategy was introduced, referring to imported water, local catchment sources, desalinated water and recycled water. Desalinated water is to serve as a primary source and recycled water as a multiplier, both meeting long term demand.

Public Utilities Board (PUB) is the entity responsible for developing and managing Singapore's water sector. PUB has a high level of autonomy and public and politic support and its efficient management has ensured that it invariably appears in the top 5% of world's urban utilities in terms of performance. Starting 1995, PUB became the national water agency overseeing all functions relating to water supply, used water and storm water management. The entire water cycle is managed as a single system, from sourcing to distributing water to collecting and treating water to produce recycled water or NEWater.

PUB is financed through:

- c) Water Tariffs Water tariffs were restructured to reflect the higher cost of securing water supplies and allowed to progressively increase between 1997 and 2000. PUB has also made recycled water cheaper than tap water and provided low cost loans and tax deductions to companies using recycled water (pricing policies and incentives to encourage uptake)
- d) General obligation bonds In 2005, PUB tapped the financial markets for a \$\$400 million bond issue.

To turn Singapore into a global hydrohub, the Environment and Water Industry Office was set up to build on the expertise of the PUB, and promote – rather than merely regulating – private sector development of water infrastructure. This office has focused in on three areas – cluster development of water industry and technology, internationalization and technology development.

GREAT BRITAIN

In England, the ten private water authorities are responsible for all aspects of management of water within a geographical region, defined by a river basin or a series of river basins. There are a few smaller private organizations that provide domestic water delivery as well. The Water Services Regulation Authority (OFWAT) is the body responsible for economic regulation of the water and sewerage industry in England and Wales. OFWAT's main statutory duties include protecting the interests of customers, securing the long-term resilience of water supply and wastewater systems and ensuring that companies carry out their functions and are able to finance them.

Average annual investments in water and sewerage in England and Wales were £3.3 billion in 2000–2005 and £3.6bn in 2005–2010, according to Water Services Regulation Authority (OFWAT), which corresponds to £61 per capita per year. According to the industry association Water UK, between 1980 and 2010 the water and wastewater industry in England and Wales will have invested over £88bn.

Investments are financed primarily through self-financing and borrowing in the capital market. In March 2006 overall borrowing stood at £23.5bn for England and Wales. Net returns on this borrowing in 2006 were 6.6%.

Federal Revenue Sources:

Federal Agency: FEMA

FEMA's focus on risk management has expanded to anticipate climate changes and to plan and implement strategy for program development in support of climate resilient infrastructure. In particular, Hazard Mitigation Assistance (HMA) is being expanded to meet the goals of long-term climate resilience. Projects that best address climate change weather extremes receive additional funding consideration by FEMA.

Aquifer Storage and Recovery (ASR) is now a project type identified by FEMA to mitigate the risks associated with climate change in addition to floodwater diversion and storage, floodplain and stream restoration, and low impact development/green infrastructure. Aquifer Recharge and Recovery (ARAR) is considered a subsect of ASR. Report Template (fema.gov)

Program: Hazard Mitigation Grant, Pre-Disaster Mitigation and Flood Mitigation Assistance Program (*Applicable to Municipal/Private Utilities, Agriculture, Industrial, Tribal, Environment*)

Eligible Applicants: Emergency Management Agency of the 50 states, territories and federally recognized Tribes. Homeowners, business operators, and non-profit organizations can apply as subapplicant.

Subapplicants: State agencies, federally recognized Tribes, Local governments/communities, Private non-profit organizations. Individuals and businesses are not eligible to apply for HMA funds; however, an eligible Applicant or subapplicant may apply for funding on behalf of individuals and businesses.

Cost Share: HMA funds may be used to pay up to 75 percent of the eligible activity costs. The remaining 25 percent of eligible activity costs are derived from non-Federal sources.

Additional Information: Before You Apply: Things to Know and Do Before for Hazard Mitigation Grant Program Funds | FEMA.gov

Arizona Department of Emergency and Military Affairs Division of Emergency Management 5636 E. McDowell Road Building #M5101

Phoenix, Arizona 85008 Phone: (602) 464-6349 dem.azdema.gov/

Federal Agency: Bureau of Reclamation

Program: Drought response program under WaterSMART (*Applicable to Municipal/Private Utilities, Agriculture, Industrial, Tribal, Environment*)

Drought contingency planning, drought resiliency planning and emergency response actions. Projects that build resilience to drought, projects supported by a drought plan are more competitive. Eligible Projects include:

Infrastructure Improvements

- Modifying surface water intakes
- New conveyance system components
- Additional water storage
- Aquifer storage and recovery
- Capture and treat alternative supplies

Decision Support tools and modeling

- Tools to support water marketing
- Tools to convey water supply
- Measurement

Environmental Protection

- Improve habitat
- Install fish screens and ladders

Evaluation Criteria

- Project benefits (40 points)
- Drought planning and preparedness (20 points)
- Severity of actual or projected drought impacts to be addressed by the project (20 points)
- Project Implementation (10 points)
- Nexus to Reclamation (10 points)

Eligible Applicants: States, Indian Tribes, Irrigation Districts, Water Districts, and other organizations with water or power delivery authority

Cost Share: 50% non-federal cost-share required. Funding Level I – 300 k, Funding Level II – 750k

Additional Information: <u>Drought Response Program | Bureau of Reclamation (usbr.gov)</u>

Darian Mayhorn, Reclamation Drought Coordinator

Dmayhorn@usbr.gov

Federal Agency: Bureau of Reclamation

Program: Title XVI

Through the Title XVI Water Reclamation and Reuse Program authorized by Public Law (P.L) 102-575 in 1992, the Bureau of Reclamation identifies and investigates opportunities to reclaim and reuse wastewaters and naturally impaired ground and surface water. Title XVI includes funding for the planning, design, and construction of water recycling and reuse projects on a project specific basis in partnership with local government entities. Title XVI projects develop and supplement urban and irrigation water supplies through water reuse – thereby improving efficiency, providing flexibility during water shortages, and diversifying water supply. Initially funding could only be provided for the 53 specific congressionally authorized projects.

Pursuant to the Water Infrastructure and Improvement Act of 2016 (WIIN), funding is currently allowed for new water recycling projects as well as ASR and ARAR projects.

Eligible Applicants: States, Indian Tribes, Irrigation Districts, Water Districts, and other organizations with water or power delivery authority

Cost Share: Federal share is up to 25% of the total and up to a maximum of \$2 million. Applicants must be willing to cost share 75 percent or more of the total project costs.

Additional Information: Additional information can be found at http://www.usbr.gov/WaterSMART/title/index.html

Federal Agency: Environmental Protection Agency

Program: Water Infrastructure and Finance Innovation Act (WIFIA) (*Applicable to Municipal/Private Utilities, Agriculture, Industrial, Tribal*)

Projects that are eligible for the Clean Water SRF, notwithstanding the public ownership clause

Projects that are eligible for the Drinking Water SRF

Enhanced energy efficiency projects at drinking water and wastewater facilities

Brackish or seawater desalination, aquifer recharge, alternative water supply, and water recycling projects

Drought prevention, reduction, or mitigation projects

Acquisition of property if it is integral to the project or will mitigate the environmental impact of a project

A combination of projects secured by a common security pledge or submitted under one application by an SRF program

Eligible development and implementation activities are:

Development phase activities, including planning, preliminary engineering, design, environmental review, revenue forecasting, and other pre-construction activities.

Construction, reconstruction, rehabilitation, and replacement activities

Acquisition of real property or an interest in real property, environmental mitigation, construction contingencies, and acquisition of equipment

Capitalized interest necessary to meet market requirements, reasonably required reserve funds, capital issuance expenses and other carrying costs during construction

Eligible Applicants: Local, state, tribal and federal government entities, Partnership and joint ventures, Corporations and Trusts and Clean Water and Drinking Water State Revolving Fund (SRF) programs.

WIFIA Selected Projects Map | Water Infrastructure Finance and Innovation Act (WIFIA) | US EPA

Cost Share:

\$20 million: Minimum project size for large communities.

\$5 million: Minimum project size for small communities (population of 25,000 or less).

49 percent: Maximum portion of eligible project costs that WIFIA can fund.

Total federal assistance may not exceed 80 percent of a project's eligible costs.

35 years: Maximum final maturity date from substantial completion.

5 years: Maximum time that repayment may be deferred after substantial completion of the project.

Interest rate will be equal to or greater than the <u>U.S. Treasury rate of a similar maturity</u> at the date of closing.

Projects must be creditworthy and have a dedicated source of revenue.

NEPA, Davis-Bacon, American Iron and Steel, and all other federal cross-cutter provisions apply

Additional Information: Water Infrastructure Finance and Innovation Act (WIFIA) | US EPA

Contact: wifia@epa.gov

Federal Agency: Environmental Protection Agency

Program: The State infrastructure financing authority WIFIA (SWIFIA) program - new loan program exclusively for State infrastructure financing authority borrowers. The SWIFIA project must be a combination of eligible development and implementation projects, each of which is eligible for assistance under section 603(c) of the Federal Water Pollution Control Act (33 U.S.C. § 1383(c)) or section 1452(a)(2) of the Safe Drinking Water Act (42 U.S.C. §§ 300j–12(a)(2)) for which a State infrastructure financing authority submits to EPA in a single request.

Building Resilient Infrastructure and Communities (BRIC) (Building Resilient Infrastructure and Communities (BRIC) | Federal Funding for Water and Wastewater Utilities in National Disasters (Fed FUNDS) | US EPA)

Eligible Applicants: Exclusively State infrastructure financing authorities.

Cost Share: 49 percent: Maximum portion of eligible SWIFIA project costs that EPA can finance.

Additional Information: What is SWIFIA? | Water Infrastructure Finance and Innovation Act (WIFIA) | US EPA

Federal Agency: United States Army Corps of Engineers

Program: Corps Water Infrastructure Financing Program (*Applicable to Municipal/Private Utilities, Agriculture, Industrial, Tribal, Environment*)

Projects must be non-Federally owned, operated, and maintained.

Projects must meet statutory eligibility requirements, including creditworthiness.

Focus on projects that are not Federally authorized.

A project, submitted by an eligible borrower, must have costs reasonably anticipated to be at least \$20 million and must fall under one of the following three categories per the WIFIA <u>authorization</u>:

- 1. Any project for flood damage reduction, hurricane and storm damage reduction, environmental restoration, coastal or inland harbor navigation improvement, or inland and intracoastal waterways navigation improvement that the Secretary determines is technically sound, economically justified, and environmentally acceptable, including:
 - i. A project to reduce flood damage;
 - ii. A project to restore aquatic ecosystems;
 - iii. A project to improve the inland and intracoastal waterways navigation system of the United States; and
 - iv. A project to improve navigation of a coastal inland harbor of the United States, including channel deepening and construction of associated general navigation features.
- 2. Acquisition of real property or an interest in real property. The acquisition must either be integral to the project or would mitigate the environmental impacts of water resources infrastructure projects otherwise eligible for CWIFP credit assistance.
- 3. A combination of projects described in paragraphs 1 and 2, above, secured by a common security pledge, each of which is eligible for CWIFP credit assistance, for which an eligible entity, or a combination of eligible entities, submits a single application.

Eligible Applicants: A corporation, a partnership, a joint venture, a trust, a Federal, State, or local governmental entity, agency, or instrumentality, a tribal government or consortium of tribal governments, a State infrastructure financing authority

Cost Share: Funding of up to 49% of project costs

Additional Information: CWIF Overview (army.mil)

Federal Agency: United States Department of Agriculture

The USDA Rural Development program's mission is to help improve the economy and quality of life in rural America and offers funding opportunities to rural communities that may be interested in implementing ASR projects to provide water supply resiliency. The USDA Rural Development Water and Environmental Program provides loans, grants, and loan guarantees for drinking water and other public utility facilities in rural areas and cities and towns of 10,000 or less. In addition, the Program provides Emergency Community Water Assistance Grants of \$500,000 to assist rural communities that have experienced a significant decline in quantity or quality of drinking water due to an emergency, including drought, or in which such decline is considered imminent to obtain or maintain adequate quantities of water that meet the standards set by the Safe Drinking Water Act.

Program: Revolving Funds for Financing Water and Wastewater Projects in Arizona - (Applicable to Municipal/Private Utilities, Agriculture, Tribal)

Eligible Applicants: Nonprofits that have:

- Legal authority to operate a revolving loan fund.
- Financial, technical and managerial capacity to comply with relevant state/federal laws and regulations.

Cost Share: The applicant must contribute at least 20 percent.

- Matching funds may be from the applicant or a third party.
- Matching funds may <u>not</u> be in-kind.

Additional Information: Revolving Funds for Financing Water and Wastewater Projects in Arizona | Rural Development (usda.gov)

Federal Agency: United States Department of Agriculture

Program: Special Evaluation Assistance for Rural Communities and Households (Applicable to Municipal/Private Utilities, Agriculture, Tribal)

This program helps very small, financially distressed rural communities with predevelopment feasibility studies, design and technical assistance on proposed water and waste disposal projects.

Eligible Applicants: Most state and local governmental entities, Nonprofits, Federally recognized tribes.

Areas to be served must be rural and financially distressed:

- Rural areas with a population of 2,500 or less
- Have a median household income below the poverty line or less than 80 percent of the statewide non-metropolitan median household income based on latest Census data

The predevelopment planning costs must be related to a proposed project that meets the following requirements:

- Construct, enlarge, extend or improve rural water, sanitary sewage, solid waste disposal and storm wastewater disposal facilities
- Construct or relocate public buildings, roads, bridges, fences or utilities, and to make other public improvements necessary for the successful operation or protection of facilities
- Relocate private buildings, roads, bridges, fences, or utilities, and other private improvements necessary for the successful operation or protection of facilities

Additional Information: SEARCH - Special Evaluation Assistance for Rural Communities and Households | Rural Development (usda.gov)

Federal Agency: United States Department of Agriculture

Program: Water & Waste Disposal Loan and Grant Program (Applicable to Municipal Utilities, Tribal)

This program provides funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and storm water drainage to households and businesses in eligible rural areas.

Eligible Applicants:

- Most state and local governmental entities
- Private nonprofits
- Federally-recognized tribes

Areas that may be served include:

- Rural areas and towns with populations of 10,000 or less -- check eligible addresses
- Tribal lands in rural areas
- Colonias

Funding Available: Long-term, low-interest loans, if funds are available, a grant may be combined with a loan if necessary to keep user costs reasonable.

Additional Information: Water & Waste Disposal Loan & Grant Program | Rural Development (usda.gov)

Federal Agency: The U.S. Department of Housing and Urban Development (USHUD)

Community Development Block Grant Program USHUD Community Development Block Grants (CDBGs) are programs that may provide grants for long-term needs to rehabilitate, construct, or buy public facilities/infrastructures such as water and sewer systems. In the past, these grants have been used to develop new water sources, improve treatment, and replace distribution pipes; therefore, it is feasible that development of an ASR project would qualify. Recipient communities must spend at least 70 percent of their funds for activities that benefit low- and moderate-income persons. Grantees may fund activities that meet community development needs of particular urgency because existing conditions pose a serious and immediate threat to the health or welfare of the community and other financial resources are not available to meet such needs. CDBGs may be used to match FEMA grants. In addition, in response to specific disasters, Congress may appropriate additional funding under CDBG Disaster Recovery grants to rebuild in Presidentially Declared Disaster areas and provide crucial seed money to start the recovery process. Among eligible activities used for recovery efforts under CDBG Disaster Recovery funds are several relating to infrastructure, including construction/reconstruction of water systems. CDBG Section 108 loan guarantees provide communities with a source of financing for public facilities, economic development, housing rehabilitation, and large-scale physical development projects. It allows local governments to transform a small portion of their CDBG funds into Federally guaranteed loans large enough to pursue physical and economic revitalization projects.

These programs may be available for communities interested in implementing ASR projects for the purpose of long-term water supply security.

Programs: Natural Disaster Resilience Program - grants to rebuild the affected areas and provide crucial seed money to start the recovery process. These flexible grants help cities, counties, and States recover from Presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations. Since CDBG Disaster Recovery (CDBG-DR) assistance may fund a broad range of recovery activities, HUD can help communities and neighborhoods that otherwise might not recover due to limited resources.

Community Development Block Grant Mitigation Program - pose a unique opportunity for eligible grantees to use this assistance in areas impacted by recent disasters to carry out strategic and high-impact activities to mitigate disaster risks and reduce future losses.

(Applicable to Municipal Utilities, Tribal)

Additional Information: Community Development Block Grant Disaster Recovery Program | HUD.gov / U.S. Department of Housing and Urban Development (HUD)

Arizona State Programs

Program: Drinking Water State Revolving Fund (DWSRF) available through Water Infrastructure Financing Authority (WIFA) (Applicable to Municipal Utilities, Agriculture, Tribal)

The DWSRF is structured as a federal-state partnership through which a permanent drinking water infrastructure revolving loan fund has been created in every state. The federal government provides capitalization grants to states. States provide a 20% match for those grants. The principal objective of the DWSRF is to facilitate compliance with national primary drinking water regulations or otherwise significantly advance the public health protection objectives of the SDWA. States are required to give priority for the use of DWSRF project funds to:

- · Address the most serious risks to human health
- Ensure compliance with the requirements of the SDWA
- Assist systems most in need on a per household basis according to state affordability criteria States have considerable flexibility regarding the use of their capitalization grant funds.

The primary use of capitalization grant funding is for assistance to water utilities for capital improvements (water infrastructure projects). This assistance can be provided as:

- Planning and design loans
- Construction loans
- · Purchasing or refinancing debt obligations
- Insurance or guarantee for local debt
- Security reserve for leveraging
- Additional subsidization

One of the categories that DWSRF funds:

Development of new sources to replace a contaminated drinking water source or to increase drought resilience

- Raw water intakes, wells or other constructed infrastructure that allows for movement of raw water into the treatment plant or into the distribution system
- Alternative supply in case of emergency or drought, such as: o Interconnections o Surface water intakes o Ground water wells
- Aquifer storage and recovery (ASR) system for water storage (e.g., part of a reclaimed water system), including: Wells, Pumps, Pipes, Wellhead structures
- Riverbank filtration wells o Plugging abandoned wells when new replacement wells are drilled

Eligible Applicants – Publicly-owned community water systems can apply for Arizona's DWSRF program; these include: Cities, Towns, Special Districts, Tribal Entities, Arizona Corporation Commission (ACC) regulated private community water systems and Non-profit non-community water systems that meet DWSRF requirements and are regulated by the ACC.

Additional Information:

<u>Drinking Water State Revolving Fund (DWSRF) | US EPA</u>

<u>Drinking Water SRF (azwifa.gov)</u> **Contact:** ddialessi@azwifa.gov